STEERING DEVICE FOR ARTICULATED VEHICLE

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation application of U.S. patent application Ser. No. 14/006,953, filed Nov. 26, 2013, which is a U.S. National Phase patent application of PCT/SE2012/050301, filed Mar. 19, 2012, which claims priority to Swedish Patent Application No. 1150257-2, filed Mar. 23, 2011, each of which is hereby incorporated by reference in the present disclosure in its entirety.

FIELD OF THE INVENTION

The invention relates to a steering device for an articulated vehicle. The invention also relates to an articulated vehicle.

BACKGROUND OF THE INVENTION

Steering members for articulated vehicle, particularly articulated tracked vehicle, comprising a front vehicle unit and a rear vehicle unit steerably interconnected by means of the steering member are known. The front and rear vehicle units are interconnected over a link mechanism of the steering member comprising link shafts about which both vehicle units are mutually pivotable by means of hydraulic cylinders.

WO 00/35735 discloses a steering member for an articulated vehicle being configured in such a way that the vehicle units firstly may rotate mutually about a longitudinal, horizontal shaft, secondly pivot mutually about two parallel, transversal horizontal shafts, and thirdly obtain an improved steering geometry with the vertical steering link situated centrally between the vehicle units.

Articulated vehicles with such steering member comprises a driveline for operation of front and rear vehicle units, wherein the driveline is arranged to run from the front to the rear vehicle units in connection to the steering member/through the steering member for drive of the rear vehicle unit. Further, according to a variant of such steering members, electricity, fuel, brake fluid and fluid for air-conditioning device are arranged to be transferred in conduits between the vehicle units in connection to/through the steering device.

Due to the fact that the steering member is exposed between the vehicle units it constitutes a weak point of the articulated vehicle. A problem with such a steering member is consequently that it is subjected to external impact, e.g. effective fire in a war situation, such that e.g. the steering of the vehicle or other sensitive function such as braking, drive function, electricity is put out of operation.

RU2206859 discloses a steering member for mutually steering a first and a second vehicle unit of an articulated vehicle. The steering member comprises a self-supporting house configuration in the shape of a tunnel arranged to form a supply space for protecting crew during transport of ammunition between the vehicle units. Such a housing configuration needs to be relatively large and consequently requires a lot of material which results in the steering member becoming relatively heavy wherein propulsion of the vehicle correspondingly requires relatively much energy. Further the accessibility is impaired among others in soft terrain due to weight and size.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a steering device for an articulated vehicle which improves the reliability during drive.

These and other objects, apparent from the following description, may be achieved by a steering device for an articulated vehicle and an articulated vehicle, which are described below.

According to the invention the objects are achieved by a steering device comprising a steering member for mutually steering a first vehicle unit and a second vehicle unit of an articulated vehicle comprising means for mutually pivot said vehicle units, wherein the steering device comprises a housing configuration arranged to form a supply space between said vehicle units, comprising means arranged for removal of stuff in the supply space incoming from the surrounding. Hereby the risk of stuff in the housing configuration affecting the steering is avoided/reduced, wherein the reliability thus is improved.

According to an embodiment of the steering device said means comprises a heating device arranged to heat air intended to stream through the housing configuration. Hereby removal of snow and/or ice introduced from the surrounding if facilitated through heating of said snow/ice by means of the air streaming through the housing configuration and/or prevention of ice formation in that the space is kept warm by means of the air streaming through the housing configuration. Thereby the risk of snow and/or ice in the housing configuration affecting the steering is avoided/reduced, wherein the reliability thus is improved.

According to an embodiment of the steering device said means comprises an air intake arranged in a vehicle unit, a radiator arranged downstream of the air intake, wherein air heated by means of heat exchange downstream of the radiator is arranged to stream through the housing configuration.

According to an embodiment of the steering device air intake and radiator are arranged in connection to the first vehicle unit, which constitutes the front vehicle unit. Hereby efficient stream of air through the housing configuration during drive is obtained.

According to an embodiment of the steering device the housing configuration comprises several air outlets. Hereby efficient heating of the space is obtained in that the air is spread over the space in accordance with the placement of the air outlets.

According to an embodiment of the steering device said steering member comprises an essentially vertical link shaft about which said vehicle units are pivotable. Hereby easy and efficient pivoting of the vehicle units is facilitated. According to an embodiment of the steering device said means for mutually pivoting said vehicle units comprises a first and second steering element. Hereby efficient steering of the vehicle is obtained in that the steering is facilitated by two steering elements. The steering elements are preferably constituted by steering cylinders which preferably are hydraulic.

According to an embodiment of the steering device said means comprises the bottom part of the housing configuration, which comprises two mutually movable protective elements arranged to, in a non-pivoting state of the vehicle, partly overlap each other, and, in a pivotable state of the vehicle, provide a drainage opening of the bottom part. Hereby removal of stuff such as rocks, gravel or the corresponding introduced from the surrounding is facilitated. Thereby is avoided that rocks, gravel or the corresponding in the housing configuration affects the steering and drive shaft through the steering device, wherein the reliability is thus improved.

According to an embodiment of the steering device said protective elements are mutually pivotable about said vertical